Quick Installation Guide

EAP-EX31

SOM-ETX 3.5” Application Carrier Board

1st Ed. – 7 July 2003

Part No. 2017EX3100

FCC STATEMENT

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE

RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINTST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Notice:

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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To receive the latest version of the user's manual, please visit our Web site at:

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In addition, free technical support is available from Evalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Evalue, or which have been subject to misuse, abuse, accident or improper installation. Evalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Evalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Evalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Evalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

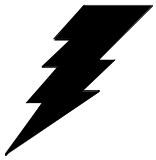
Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 EAP-EX31 SOM-ETX 3.5” Application Carrier Board
- 1 Quick Installation Guide
- Cable set includes the followings:
  - 1 PS/2 keyboard and mouse Y cable (6-pin, Mini-DIN)
  - 1 Primary IDE HDD cable (44-pin, pitch 2.0mm)
  - 1 FDD cable (34-pin, pitch 2.0mm)
  - 1 Printer port cable (26-pin, pitch 2.0mm)
  - 2 Serial port cable (10-pin, pitch 2.0mm)
  - 2 flat cables (10-pin, pitch 2.0mm) for connecting the Audio/USB/TV daughter board to EAP-EX31

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

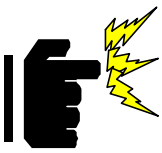
1. Safety Precautions

1.1 Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

1.2 Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

2. ETX-SOM CPU Module BIOS Refresh

As an ETX-SOM application baseboard, EAP-EX31 is compliant with the latest ETX COMPONENT SBC™ Specification. Thanks to the onboard super I/O chip Winbond W83977EF-AW, EAP-EX31 can support single FDD port, single LPT port and 4 COM ports than a standard ETX baseboard. To ensure these ports can work properly, you need to refresh the specific system BIOS on your CPU modules before installing your SOM-ETX CPU module on EAP-EX31.

2.1 For Evalue SOM-ETX CPU Modules

You can find the latest BIOS files of Evalue ESM-2440, ESM-2643, ESM-2640 and other Evalue CPU modules in the supporting CD-ROM, or you can go to our Web site at http://www.evalue-tech.com/ to download the files.

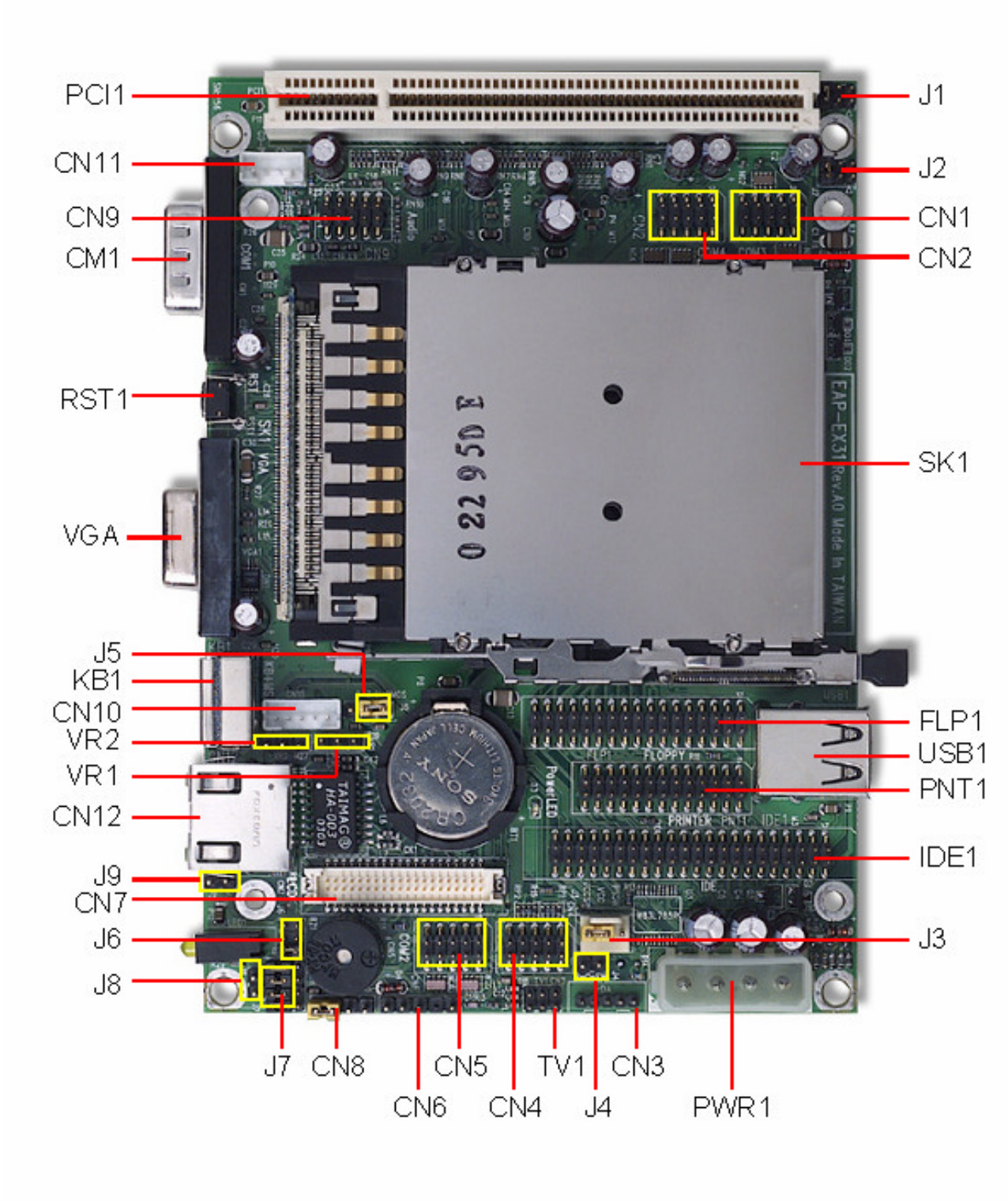
Please use the evaluation baseboard EEV-EX01 to refresh the CPU module BIOS, then put the CPU module on EAP-EX31 to boot the system. If you don't have EEV-EX01 board in hand to refresh the BIOS, please contact our technical support for assistance.

2.2 For other SOM-ETX CPU Modules

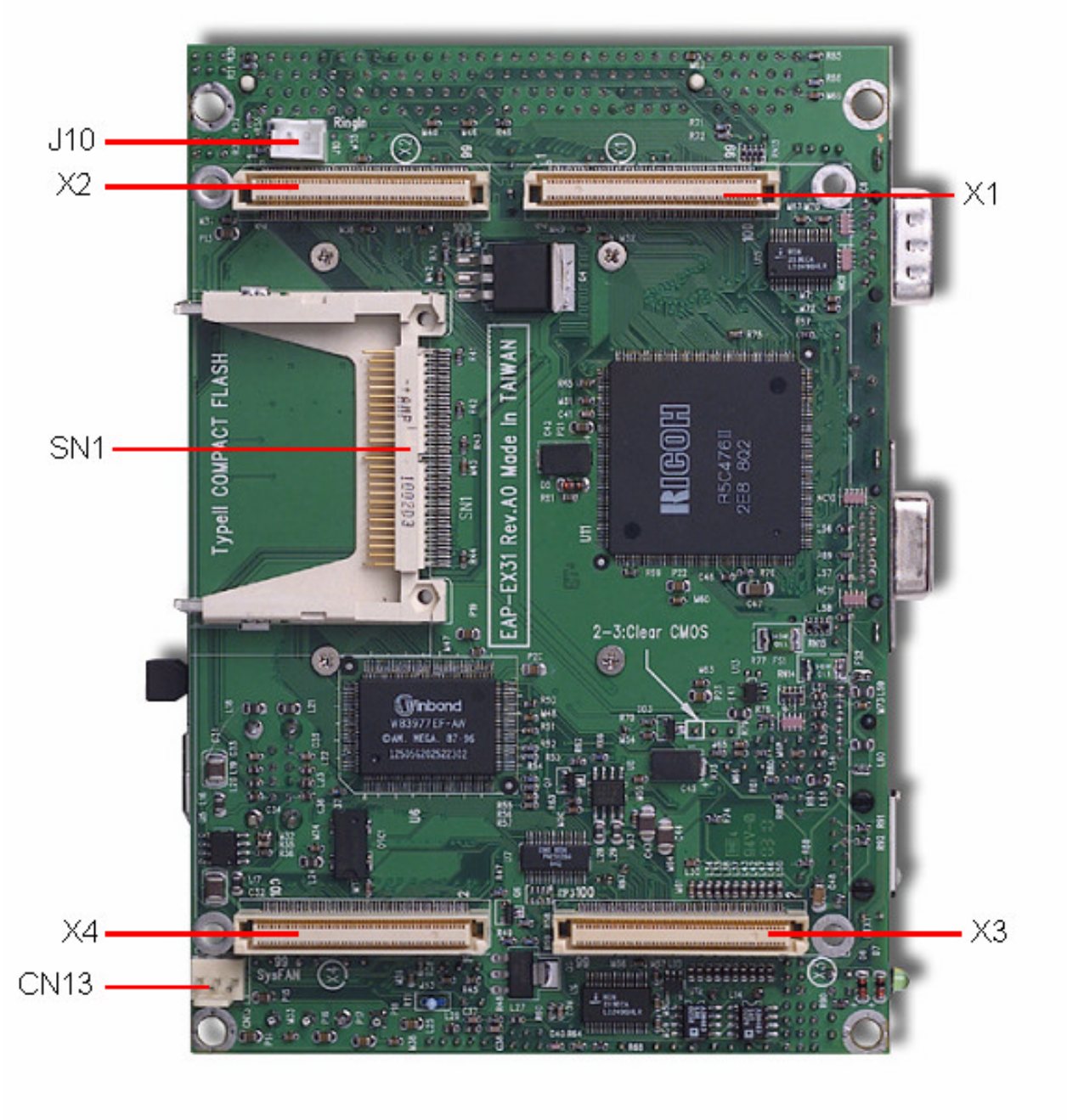
If you use the SOM-ETX CPU modules from other company on EAP-EX31, you need to get a specific system BIOS for your CPU module to support EAP-EX31. We are willing to provide the BIOS porting service if you can provide the CPU module necessary technical data to us. For further information, please contact our technical support for assistance.

3. Jumper & Connector

3.1 Jumper & Connector Layout (Component Side)



3.2 Jumper & Connector Layout (Solder Side)



3.3 Jumper and Connector List

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers		
Label	**Function**	**Note**
J1,J2	COM3/COM4 pin 9 signal select	3 x 2 header, pitch 2.0mm
J5	Clear CMOS	3 x 1 header, pitch 2.54mm
J6, J7	COM2 RS-232/422/485 select	3 x 2 header, pitch 2.0mm (J6) 4 x 3 header, pitch 2.0mm (J7)

Connectors		
Label	**Function**	**Note**
CM1	Serial port 1 connector	DB-9 male connector
CN1	Serial port 3 connector	5 x 2 header, pitch 2.0mm
CN2	Serial port 4 connector	5 x 2 header, pitch 2.0mm
CN3	IrDA connector	5 x 1 header, pitch 2.0mm
CN4	Digital I/O connector	5 x 2 header, pitch 2.0mm
CN5	Serial port 2 connector	5 x 2 header, pitch 2.0mm
CN6	Keyboard lock connector	5 x 1 header, pitch 2.54mm
CN7	LVDS connector	HIROSE DF13-40DP-1.25V
CN8	Speaker connector	4 x 1 header, pitch 2.54mm
CN9	Audio connector	5 x 2 header, pitch 2.0mm
CN10	LCD inverter connector	5 x 1 wafer, pitch 2.0mm
CN11	CD-ROM audio input connector	4 x 1 wafer, pitch 2.0mm
CN12	10/100Base-Tx Ethernet connector	RJ-45 RJ-45 valid only if the SOM-ETX CPU module w/ LAN function is implemented
CN13	System fan connector	3 x 1 wafer, pitch 2.54mm

Label	Function	Note
FLP1	Floppy connector	17 x 2 header, pitch 2.0mm
IDE1	IDE1 connector	22 x 2 header, pitch 2.0mm
J3	Auxiliary power connector	3 x 1 wafer, pitch 2.54mm
J4	ATX power switch connector	2 x 1 header, pitch 2.54mm
J8	HDD LED connector	2 x 1 header, pitch 2.54mm
J9	Reset in connector	2 x 1 header, pitch 2.54mm
J10	Ring-In connector	2 x 1 wafer, pitch 2.54mm
KB1	PS/2 keyboard & mouse connector	6-pin mini DIN
PCI1	PCI Slot	
PNT1	Printer port connector	13 x 2 header, pitch 2.0mm
PWR1	AT Power connector	3.5” HDD Type
RST1	System reset buttom	
SK1	PCMCIA slot	Type II x2
SN1	Compact Flash card socket	
TV1	TV output connector	3 x 2 header, pitch 2.0mm
USB1	USB connector	Double deck
VGA	CRT connector	
VR1	STN LCD contrast adjustment connector	3 x 1 header, pitch 2.54mm
VR2	LCD backlight brightness adjustment connector	3 x 1 header, pitch 2.54mm
X1	ETX connector X1	HIROSE Fx8-100S-SV
X2	ETX connector X2	HIROSE Fx8-100S-SV
X3	ETX connector X3	HIROSE Fx8-100S-SV
X4	ETX connector X4	HIROSE Fx8-100S-SV

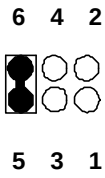
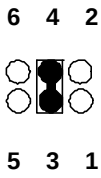
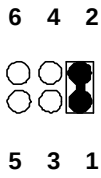
4. Hardware Configuration

4.1 Setting Jumpers

4.1.1 COM3 / COM4 Pin 9 Signal Select (J1, J2)

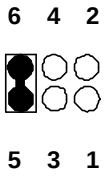
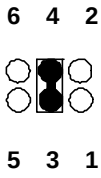
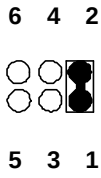
The EAP-EX31 COM3 / 4 pin 9 signal can be selected as +12V, +5V, or Ring by setting J1 / J2.

COM3 Select (J1)

	Ring*	+5V	+12V
J1			

* default

COM4 Select (J2)

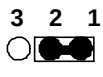
	Ring*	+5V	+12V
J2			

* default

4.1.2 Clear CMOS (J5)

You can use J5 to clear the CMOS data if necessary. To reset the CMOS data, set J5 to 2-3 closed for just a few seconds, and then move the jumper back to 1-2 closed.

Clear CMOS (J5)

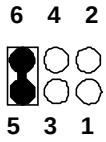
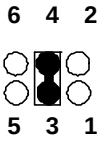
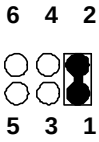
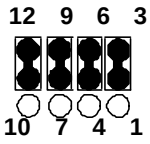
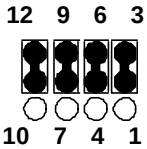
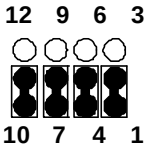
	Clear CMOS	Protect*
J5		

* default

4.1.3 COM2 RS-232/422/485 Select (J6, J7)

The EAP-EX61 COM2 serial port can be selected as RS-232, RS-422, or RS-485 by setting J6, J7.

COM2 Select (J6, J7)

	RS-485	RS-422	RS-232*
J6			
J7			

* default

4.2 Connector Definitions

4.2.1 Serial Port 1 Connector (CM1)

Signal	PIN		Signal
GND	5		
		9	RI
TxD+	4		
		8	CTS
TxD-	3		
		7	RTS
RxD-	2		
		6	DSR
RxD+	1		

4.2.2 Serial Port 3/4 Connector (CN1,CN2)

Signal	PIN		Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI/+5V/+12V	9	10	NC

4.2.3 IrDA Connector (CN3)

Signal	PIN
VCC	1
NC	2
IRRX	3
GND	4
IRTX	5

4.2.4 Digital I/O Connector (CN4)

Signal	PIN		Signal
GND	1	2	DI0
DO0	3	4	DI1
DO1	5	6	DI2
DO2	7	8	DI3
DO3	9	10	GND

4.2.5 Serial Port 2 Connector in RS-232 mode(CN5)

Signal	PIN		Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

4.2.6 Keyboard Lock Connector (CN6)

Signal	PIN
PWLED	1
NC	2
GND	3
KLOCK#	4
GND	5

4.2.7 LVDS Connector (CN7)

Signal	PIN		Signal
VCC	2	1	VCC
GND	4	3	GND
VCC3	6	5	VCC3
GND	8	7	Vcon
LCD09	10	9	LCD08
LTGIO0	12	11	JILI_DAT
DETECT#	14	13	JILI_CLK
DIGON	16	15	SYNC
VCON	18	17	BLON#
LCD019	20	19	LCD018
GND	22	21	DND
LCDDO4	24	23	LCDDO5
LCDDO12	26	25	LCDDO13
LCDDO17	28	27	LCDDO16
LCDDO10	30	29	LCDDO11
LCDDO6	32	31	LCDDO7
GND	34	33	GND
LCDDO0	36	35	LCDDO1
LCDDO14	38	37	LCDDO15
LCDDO2	40	39	LCDDO3

4.2.8 Signal Description – LVDS Connector (CN7)

The pin signals of CN7 are coming from ETX connector X3 pin 1~ pin 40. For the signal descriptions please refer to the section "LVDS Flat Panel Interface Signals" in the latest ETX COMPONENT SBC™ Specification for detail information.

4.2.9 Speaker Connector (CN8)

Signal	PIN
VCC	1
NC	2
Int. Buzzer	3
Speaker	4

Note:

To select the onboard buzzer, please short CN8 pin 3 & 4.

4.2.10 Audio Connector (CN9)

Signal	PIN		Signal
Line-Out L	1	2	Line-Out R
AGND	3	4	AGND
Line-In L	5	6	Line-In R
Mic	7	8	Mic Bias
NC	9	10	NC

4.2.11 LCD Inverter Connector (CN10)

Signal	PIN
+12V	1
GND	2
ENBKL	3
VR	4
VCC	5

Note:

For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal (pin 4) controlled by VR1. Please see the VR2 section for detailed circuitry information.

4.2.12 CD-ROM Audio Input Connector (CN11)

Signal	PIN
CD_GND	1
CD_R	2
CD_GND	3
CD_L	4

4.2.13 System Fan Connector (CN13)

Signal	PIN
VCC	1
TAC	2
GND	3

4.2.14 Auxiliary Power Connector (J3)

PIN	Signal
1	PSON#
2	VCC
3	VCCSB

Note:

The default setting of J12 is 2-3 closed for AT power supply to be used.

4.2.15 ATX Power Switch Connector (J4)

Signal	PIN
GND	2
PWBT	1

4.2.16 HDD LED Connector (J8)

Signal	PIN
JLED/ HLED	2
VCC	1

4.2.17 Reset-In Connector (J9)

Signal	PIN
GND	2
RSTIN	1

4.2.18 Ring-In Connector (J10)

Signal	PIN
RI#	1
GND	2

4.2.19 TV Output Connector (TV1)

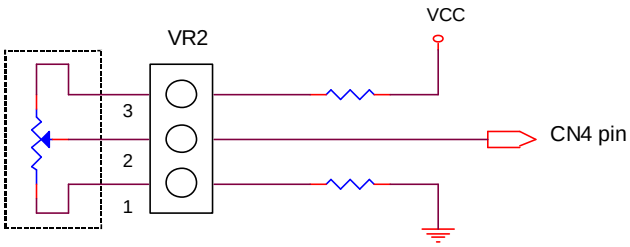
Signal	PIN		Signal
AGND	2	1	Yout
GND	4	3	Cout
GND	5	6	COMP

4.2.20 STN LCD Contrast Adjustment Connector (VR1)

Signal	PIN
VCC5	1
Vcon	2
GND	3

4.2.21 LCD Backlight Brightness Adjustment Connector (VR2)

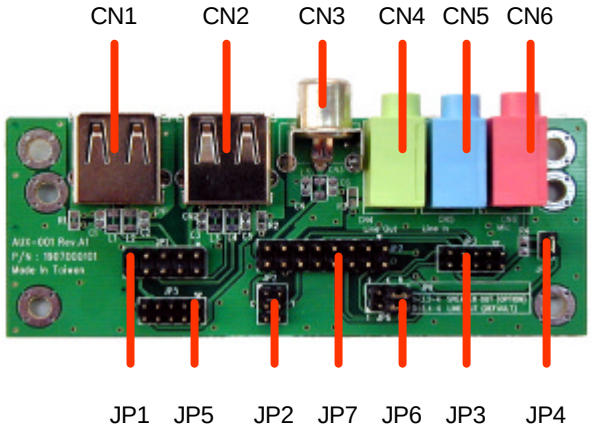
Signal	PIN
GND	1
VR	2
VCC	3



Variation Resistor (Recommended: 4.7K? , >1/16W)

5. AUX-001 Audio / USB Daughter Board User's Guide

5.1 Jumper & Connector Layout



5.2 Jumper & Connector List

Jumpers		
Label	**Function**	**Note**
CN1, CN2	USB connector	
CN3	TV out connector	
CN4	Line out connector	Phone Jack
CN5	Line in connector	Phone Jack
CN6	Mic in connector	Phone Jack
JP1	2.54mm USB connector	5 x 2 header, pitch 2.54mm
JP2	Reserve for S-terminal testing	3 x 2 header, pitch 2.0mm
JP3	Audio connector	5 x 2 header, pitch 2.0mm
JP4	Reserved	
JP5	2.00mm pitch USB connector	5 x 2 header, pitch 2.0mm
JP6	Line out / Speaker out select	1-3, 2-4 Speaker out 3-5, 4-6 Line out (Default)
JP7	TV / Audio connector	8 x 2 header, pitch 2.54mm

5.3 Connector Definitions

5.3.1 2.54mm USB Connector (JP1)

Signal	PIN CH1	PIN CH2	Signal
VCC1	1	2	GND
D1-	3	4	GND
D1+	5	6	D2+
GND	7	8	D2-
GND	9	10	VCC2

5.3.2 Reserve for S-terminal testing (JP2)

Signal	PIN CH1	PIN CH2	Signal
GND	1	2	GND
C-OUT	3	4	Y-OUT
GND	5	6	GND

5.3.3 Audio Connector (JP3)

Signal	PIN CH1	PIN CH2	Signal
Line-Out R	1	2	Line-Out L
AGND	3	4	AGND
Line-In R	5	6	Line-In L
Mic	7	8	Mic Bais
SPK R	9	10	SPK L

5.3.4 2.5mm USB Connector (JP5)

Signal	PIN CH1	PIN CH2	Signal
VCC1	1	2	GND
D1-	3	4	GND
D1+	5	6	D2+
GND	7	8	D2-
GND	9	10	VCC2

5.3.5 TV / Audio connector (JP7)

Signal	PIN CH1	PIN CH2	Signal
Mic	1	2	Mic Bais
GND	3	4	GND
Line-Out L	5	6	Line-Out R
SPK L	7	8	SPK R
Line-In L	9	10	Line-In R
AGND	11	12	Yout
GND	13	14	Cout
GND	15	16	COMP